

30<sup>th</sup> Lecture at Faiz Ghar, 3<sup>rd</sup> December 2012

# Food Therapy in the Management of Neurological Disorders

Sultan Mahmood Ph.D.,

First Diet-Care Research Center (FDRC), Lahore  
[www.dietcare.pk](http://www.dietcare.pk)

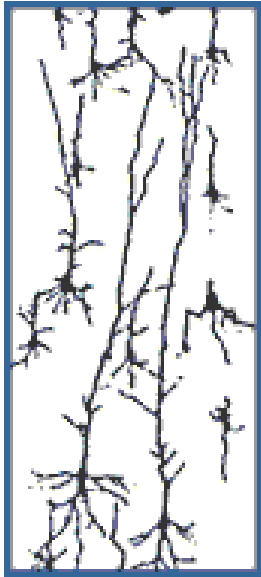
# Rehabilitation

## Mediated via the brain

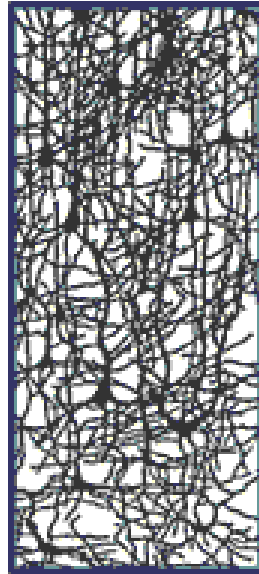
---

- **CAN THE BRAIN CHANGE ?**
- **GENETIC (Nature)**
- **EXPERIENCE (Nurture)**

# How does the brain change from birth onwards?



Birth



15 months



2-3 years

# WHAT 'models' the brain?

- Nutrition
- Environmental stimulation
- Learning
- Social contact
- Exercise (especially Yoga)

# Pathology

---

The pathology involving the CNS arises from injuries, vascular insufficiency, tumors, infections and disorders from other diseases. Neurological medical problems are due to interference with normal functioning of the affected cells

# Nervous System

## Anatomy and Physiology

---

- The nervous system acts as a coordinated unit both structurally and functionally
- Communication network responsible for coordinating and organizing the functions of all body parts
- The body's link to the environment
- Works with the endocrine system to maintain homeostasis
- Reacts in a split second

# Functions

---

- 1. Regulates system
- 2. Controls communication
- 3. Coordinates Activities of body system

# Divisions

- Central nervous system ( CNS) : brain and spinal cord –interprets incoming sensory information and sends out instruction based on past experiences
- Peripheral nervous system ( PNS) : Cranial and spinal nerves extending out from brain and spinal cord---carry impulses to and from brain and spinal cord

# Conditions where mind body therapies were used

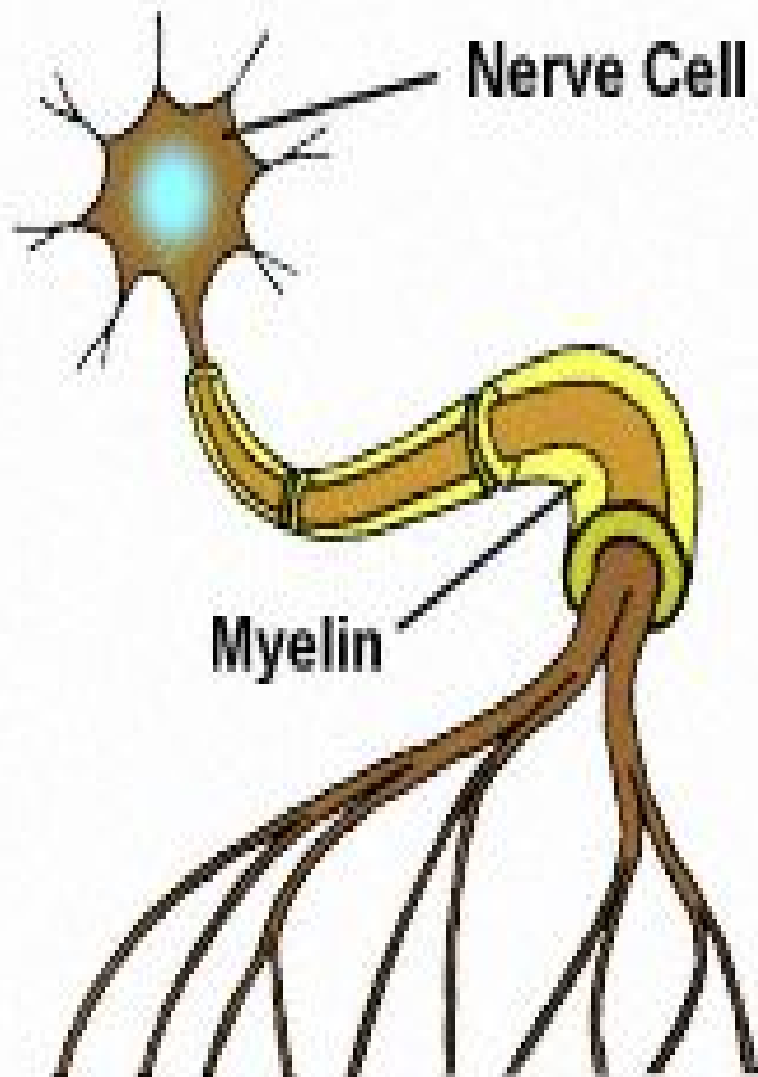
- ALZHEIMER'S Disease
- general and chronic pain,
- Paralysis,
- carpal tunnel syndrome,
- headaches,
- fibromyalgia,
- multiple sclerosis,
- epilepsy,
- Convulsions,
- muscular dysfunction,
- stroke,
- Tumours (brain, etc.)
- Parkinson disease, and
- attention deficit-hyperactivity disorder

○ Neurology. 2008 ; 70(24): 2321-8.

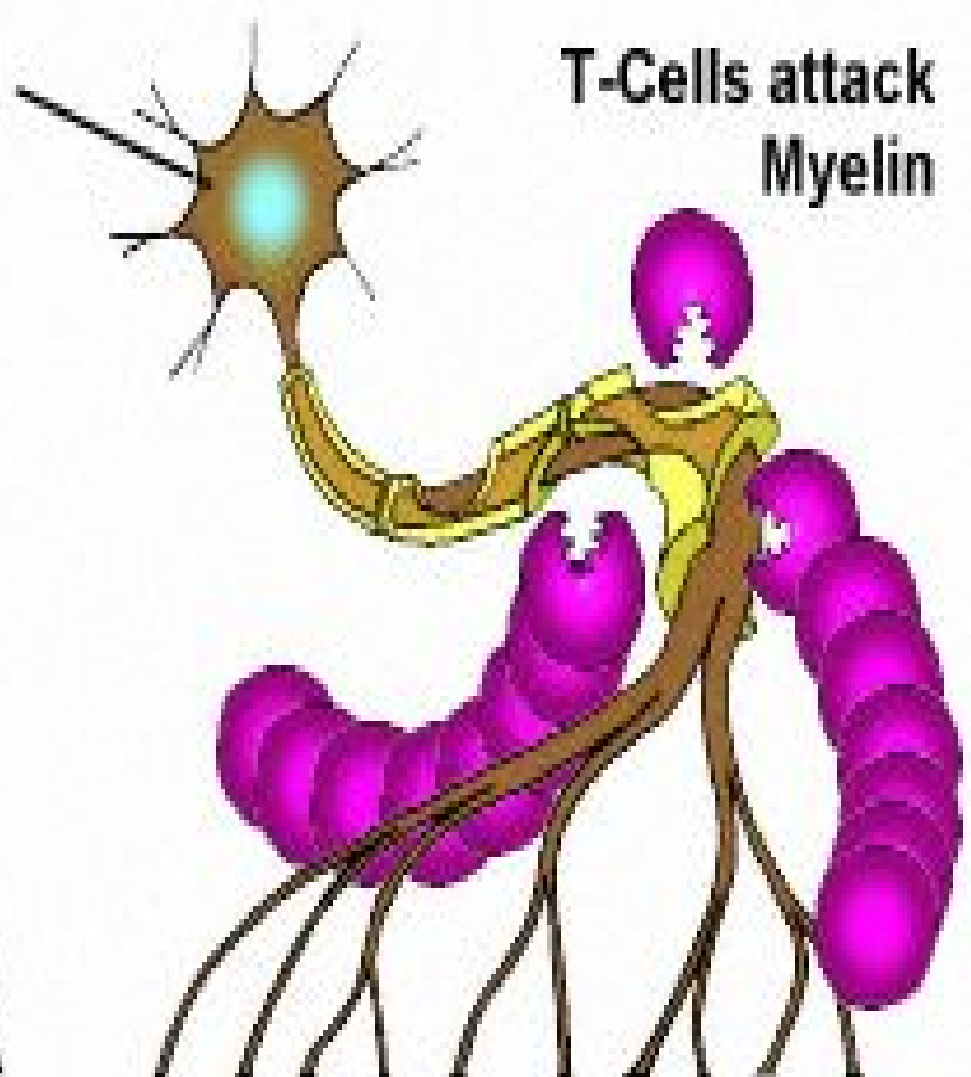
Central nervous system  
(brain and spinal cord)



In multiple sclerosis  
the myelin sheath,  
which is a single cell  
whose membrane wraps  
around the axon,  
is destroyed with  
inflammation  
and scarring

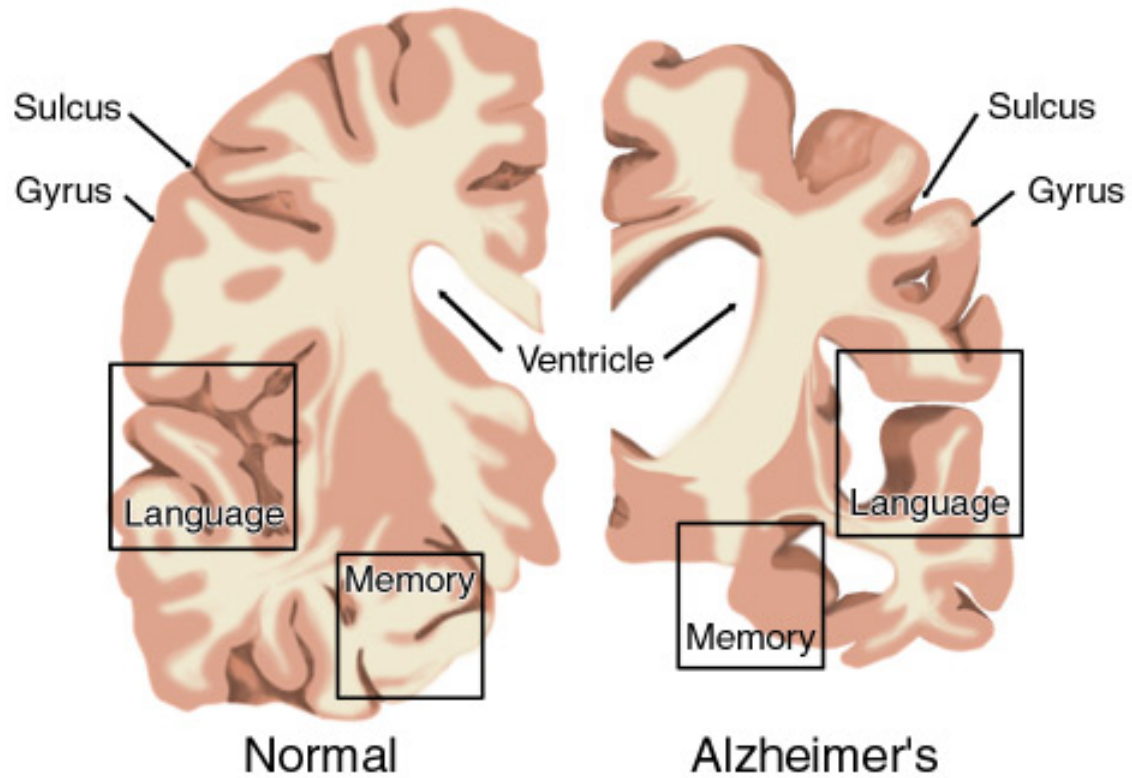


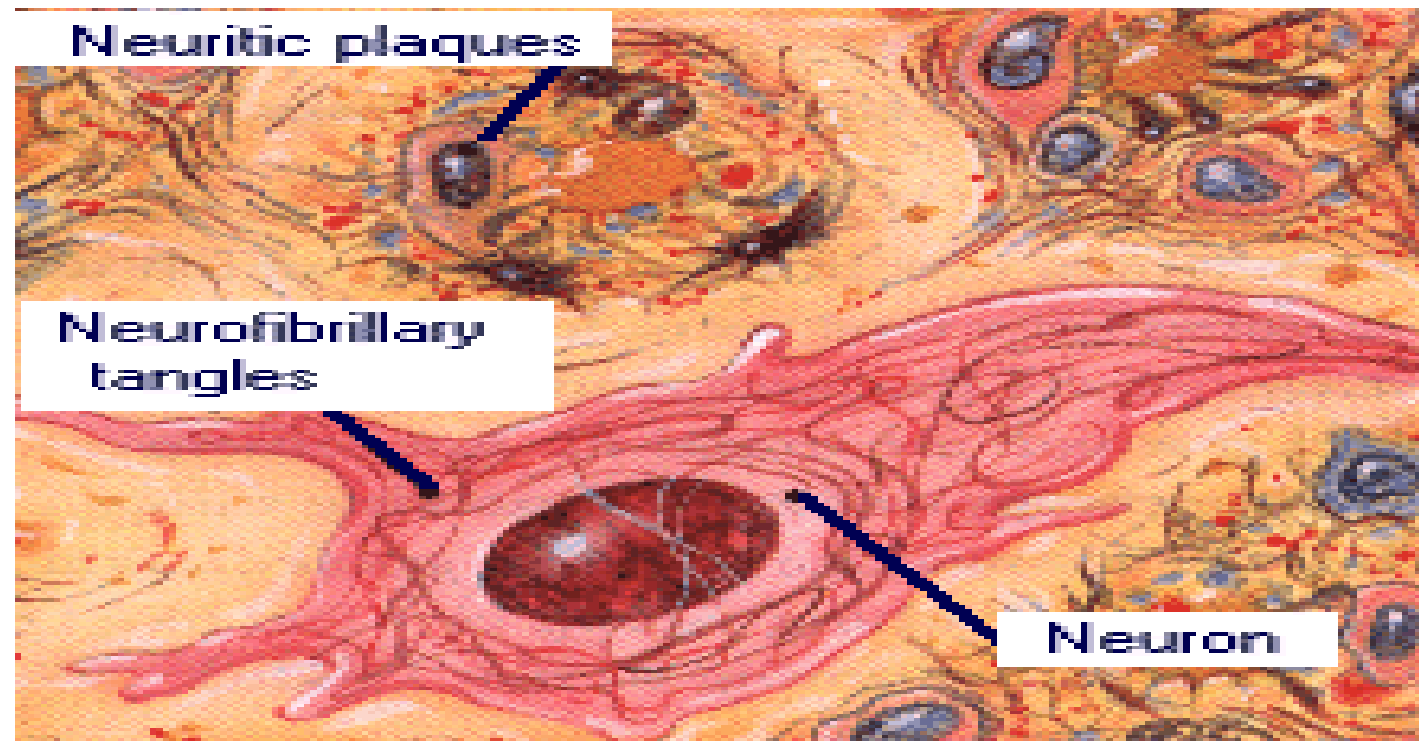
**healthy Nerve Cell Fibre**

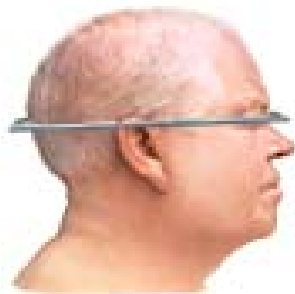


**Multiple Sclerosis**

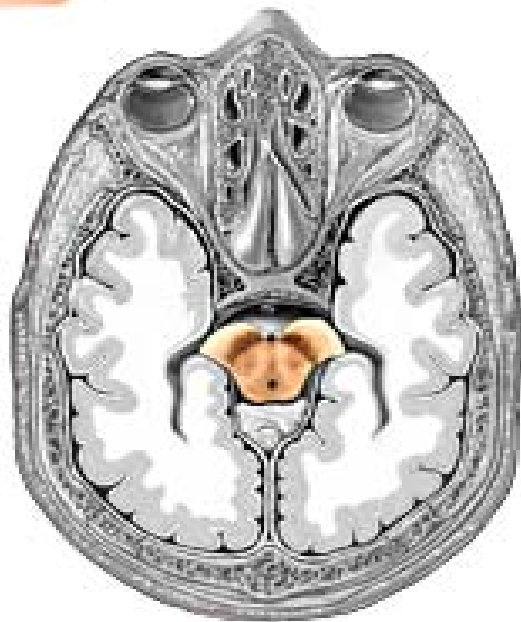
## Brain Cross-Sections



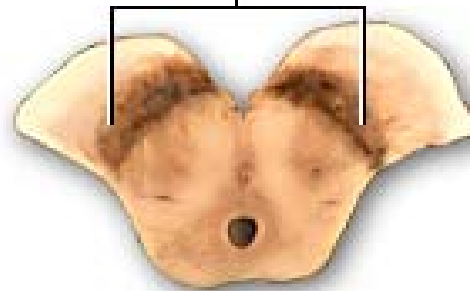




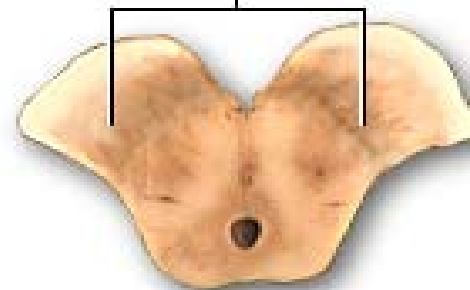
Cut section  
of the midbrain  
where a portion  
of the substantia  
nigra is visible



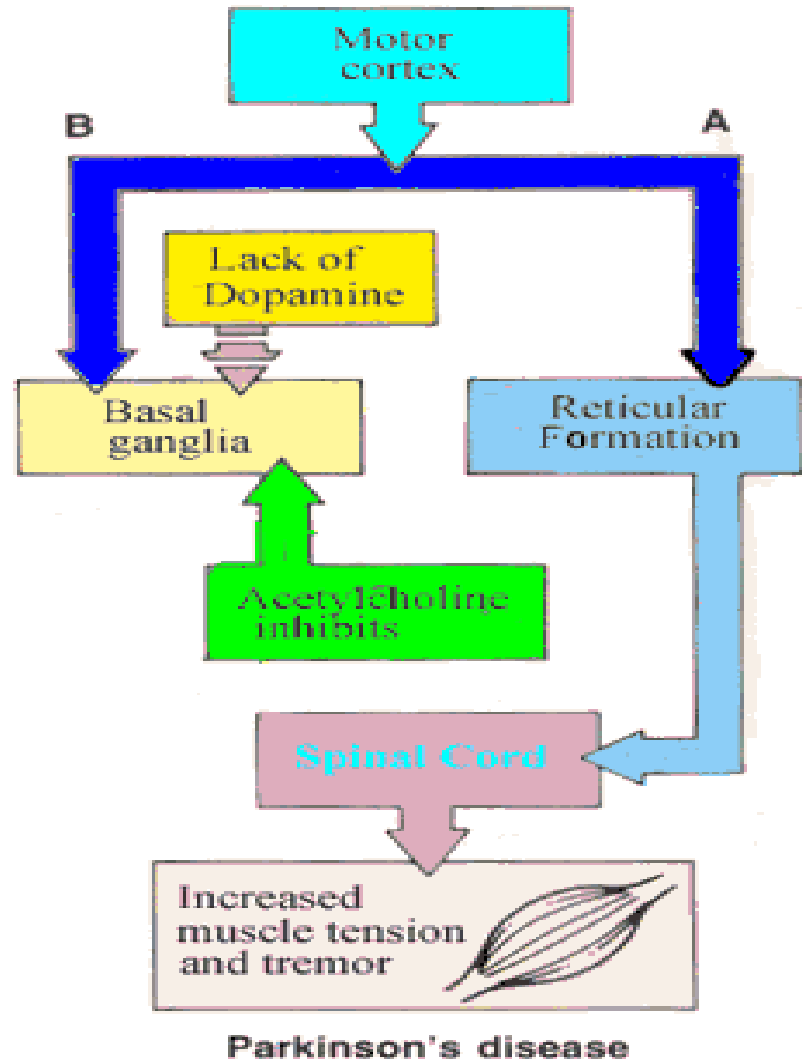
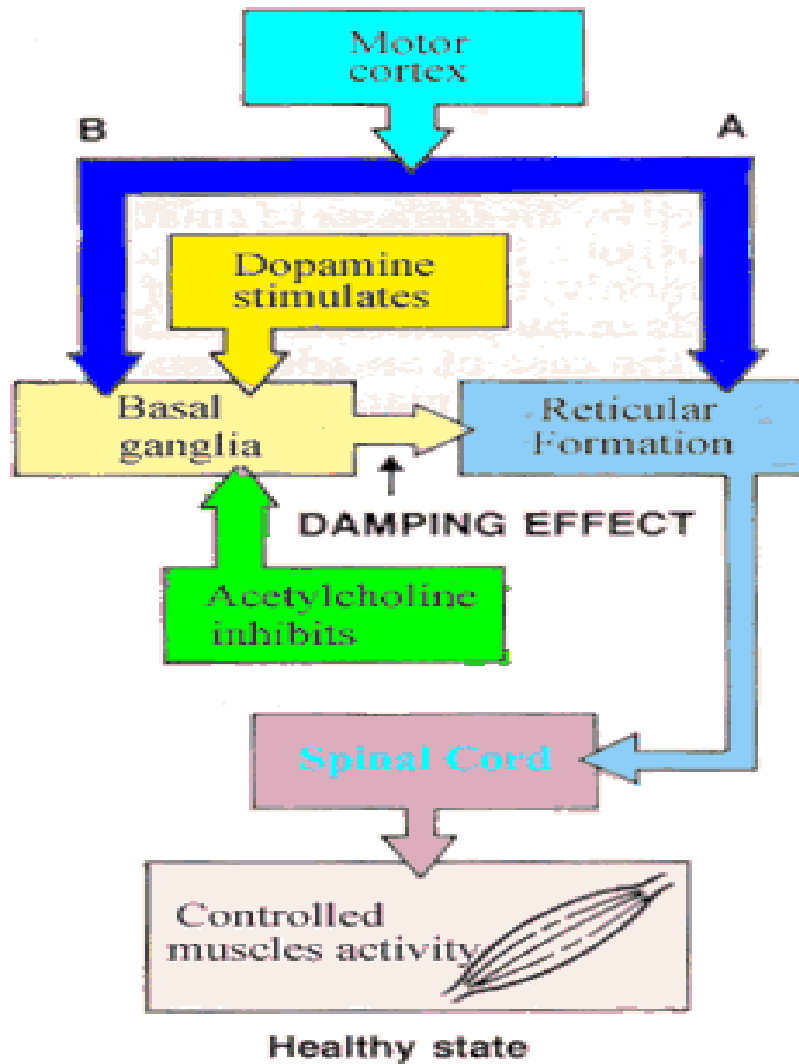
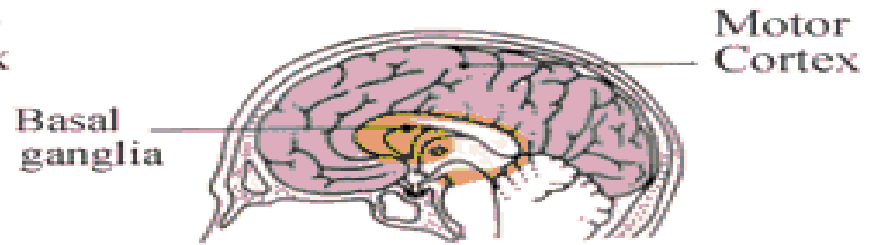
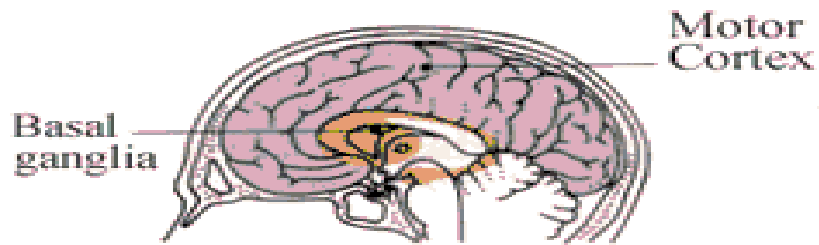
Substantia nigra



Diminished substantia  
nigra as seen in  
Parkinson's disease



 ADAM.

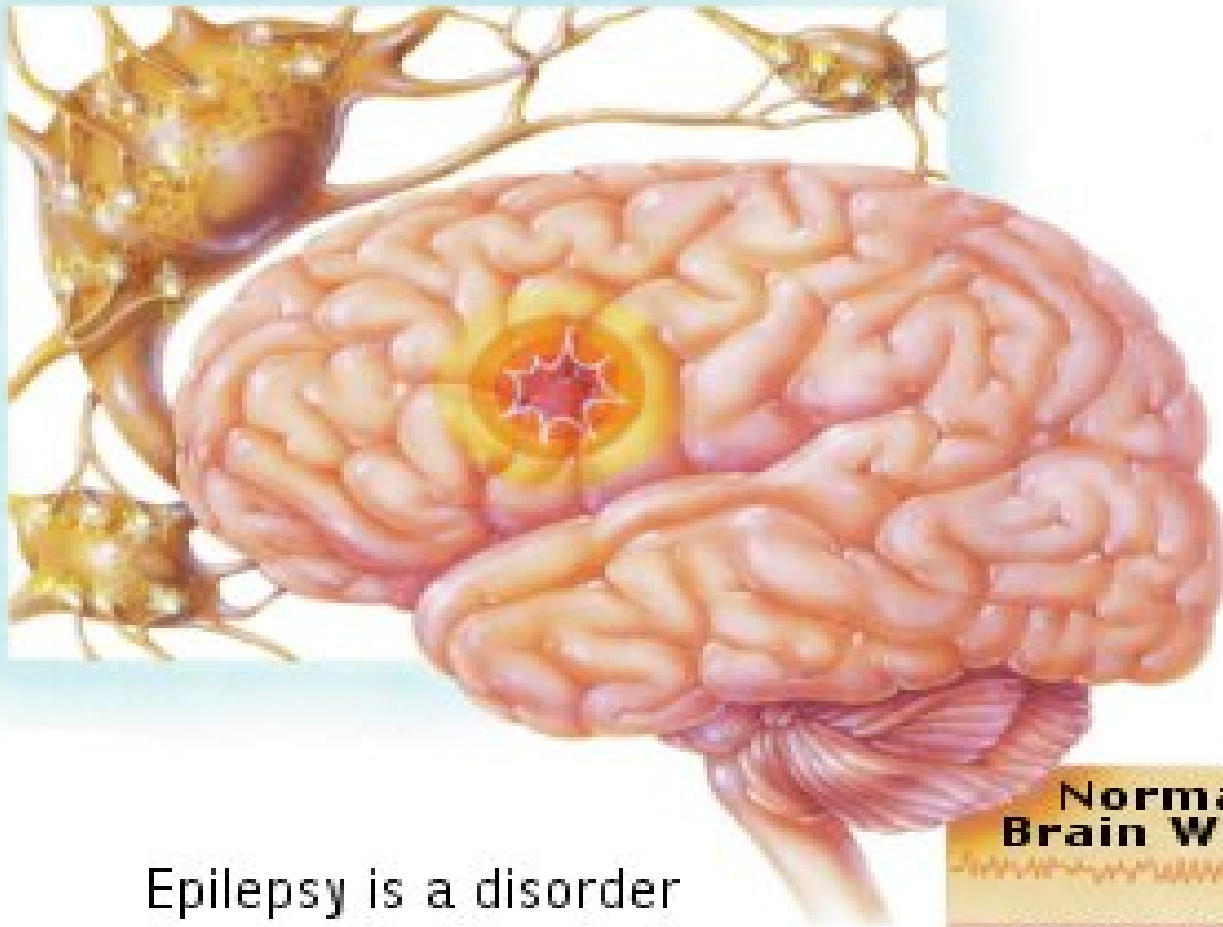


# EPILEPSY

- A group of syndromes characterized by recurring seizures

## CAUSES

1. idiopathic
2. Birth trauma
3. perinatal infection
4. infectious disease
5. ingestion of toxins
6. brain tumors
7. head Injury
8. metabolic disorders
9. CVA



Epilepsy is a disorder marked by disturbed electrical rhythms in the central nervous system.



# EPILEPSY

- Recurring seizures may be classified as GENERALIZED or PARTIAL SEIZURES
- Generalized Seizures- cause a generalized electrical abnormality within the brain
- Partial seizures- these seizures arise from a localized part of the brain and cause specific symptoms

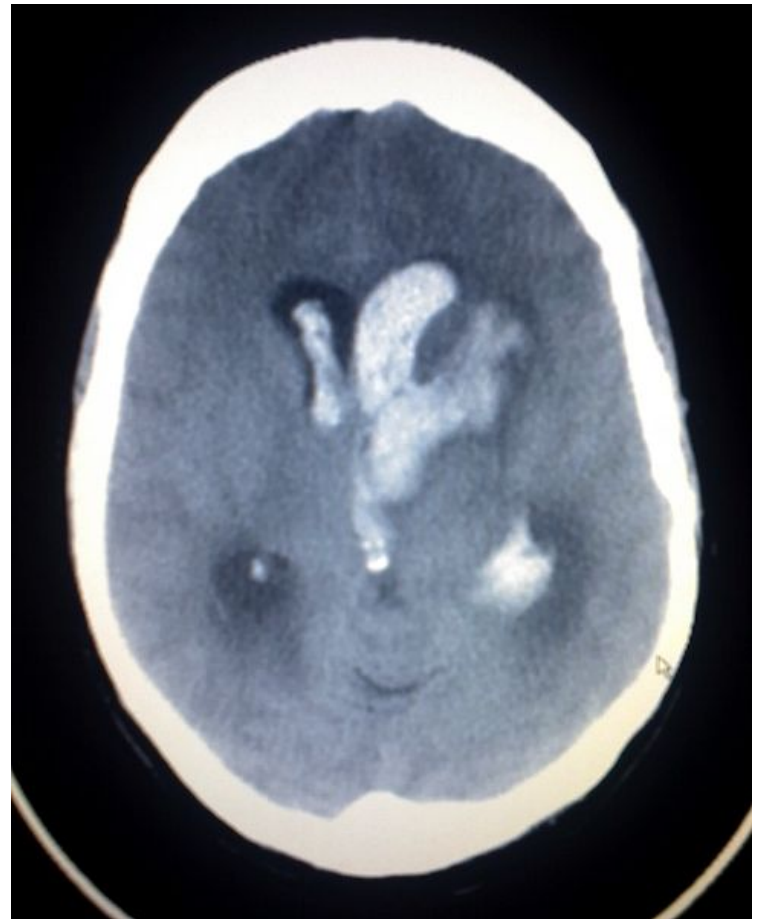
# Epilepsy

## DIAGNOSTIC TESTS

- 1. EEG
- 2. CT
- 3. MRI
- 4. LP
- 5. Angiography



A slice of brain from the autopsy  
of a person who suffered an acute  
[middle cerebral artery \(MCA\)](#)  
stroke



CT scan showing an  
intracerebral hemorrhage

**Diet Therapy.....**

# Foods for Neurological Disorders

---

- **1) Proteins and amino acids**

- Meat

- Fish

- Eggs

- Milk

- Dairy products

# Foods for Neurological Disorders

- **2) B vitamins**

- **2.1) Thiamin**

Unrefined, un-sifted or minimally processed cereals and grains (brown rice, whole wheat or brown bread, crushed wheat, and all cereals and breads that are fortified with thiamin)

- Organ meats (liver, kidneys)

- Nuts and legumes (dry beans, peas and lentils)

# Foods for Neurological Disorders

- **2.2 Niacin**
- Meat - a good source of niacin and tryptophan
- Un-sifted cereals and grains, like oats, brown rice or crushed wheat, and maize treated with limewater

# Foods for Neurological Disorders

- **2.3 Riboflavin**
- Dairy products - milk, yoghurt, cheese
- Meat, poultry, fish, eggs
- Broccoli, spinach and asparagus
- Cereals and bread fortified with vitamin B2
- While a riboflavin deficiency is not as directly linked to neurological fallout and damage as thiamin and niacin, the anaemia associated with a lack of B2 can have neurological consequences.

**In Summary .....**

# Altered Nutrition, i.e. Lesser than body requirements

---

- Diet low salt low cholesterol
- Consult dietician
- Weight daily
- Provide mouth care, clean dentures
- Place food in patients visual field
- Food and Yoga Therapy offers a Holistic Healing Experience

**Thanks.....**

## Related to Topic

### Hk Mohammad Ahmad Saleemi

1. You recommended red meat in case of tension/depression, goat meat is red or white? **Red**
2. Is there same allowance for every age, sex, or lifestyle? **No**
3. Its a myth that portion of animal meat eaten strengthens the same portion of human, is it right? **No**

## General

### Mrs Razia Jafar

1. What are the side effects and standard allowance of turmeric?  
**Stringent, bad to ulcer. No research on standard dosage.**
2. Why cooked spinach has more quantity of lutein than raw?  
**Because its keeping bundles are broken during cooking.**

### New: Mr Usman c/o Imran

1. What are meat exchanges?
2. **Pulses, dairy products, beans, dry fruits and some food supplement**
3. Dietician Farzeen said that only heart friendly meat is fish? **Wrong**

# Post Lecture Discussion